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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/253,048	02/19/1999	YASUHITO INAGAKI	9792909-4094	5170

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EXAMINER
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MARKOFF, ALEXANDER

ART UNIT	PAPER NUMBER
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1792

MAIL DATE	DELIVERY MODE
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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/253,048	<b>Applicant(s)</b> INAGAKI ET AL.	
	<b>Examiner</b> Alexander Markoff	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 42-48, 50, 51 and 55-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-48, 50, 51 and 55-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/23/08 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 42, 44, 48, 50, 51, 55 and 56 rejected under 35 U.S.C. 102(b) as being anticipated by Horwitz et al (US Patent No 5,281,631).

Horwitz et al teach a method as claimed. The method comprises providing an agent, which comprises a polymer having the claimed components in the claimed proportions. The polymer comprises the claimed groups. The polymer is further treated with the claimed agents (acids and/or alkali, including the claimed sulfuric acid) to obtain the treatment agent (an ion exchange resin). The method further comprises contacting

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the agent with waste waters to remove the claimed contaminants. See entire document, especially columns 1-3, column 4, line 20 – column 7, line 65, Examples 1, 4, 5.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horwitz et al in view of Grant et al (US Patent NO 5,242,503).

Horwitz et al teach the claimed method except for application of the cleaning agent to a solid soil material.

However, Grant et al teach removal contamination as claimed from the solid soil with ion exchange resins.

It would have been obvious to an ordinary artisan at the time the invention was made to use the ion exchange resin of the Horwitz et al in the method of Grant et al with reasonable expectation of adequate results because the resin of Horwitz et al is disclosed for removal the same contaminants as recited by Grant et al.

8. Claims 43 and 57 rejected under 35 U.S.C. 103(a) as being unpatentable over Horwitz et al in view of Rodman (US Patent No 3,375,933).

Horwitz et al teach the claimed method except for specific recitation of the use of a column to facilitate the contact of the agent with the waste water and for the specific recitation of molding of the exchange resin with a plastic.

Rodman teaches that it was known in the art to mold the exchange resins with plastic to improve efficiency of the resins.

Rodman also shows a column as a conventional way to contact the water to be cleaned with a cleansing agent.

See entire document, especially columns 1 and 2, column 3, lines 15-31, column 4, line 73 – column 5, line 15, Table 1, Figure 3 and the related description.

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It would have been obvious to an ordinary artisan at the time the invention was made to employ the conventional means disclosed by Rodman in the method of Horwitz et al for their primary purpose to contact the water to be cleaned with the cleansing agent with reasonable expectation of success.

It would have also be obvious to an ordinary artisan at the time the invention was made to mold the exchange resin with a plastic as suggested by Rodman in the method of Horwitz et al because Rodman teaches that such would increase the efficiency of the cleaning.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 42-48, 50, 51 and 55-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims are indefinite because of the meaning of the term "the polymer" is inconsistent. Claim 50 requires the referenced material be a resin or a rubber, while claim 56 recites that the referenced polymer is obtained by processing the resin with acid and/or alkali. It is not clear what is referenced by the term ""the polymer". Is it an unprocessed resin/rubber or a modified resin/rubber? It is also

not clear from claim 42 what is referenced by the clause "into the polymer are introduced ionic groups".

The applicants are again asked to clarify what is claimed.

What is referenced as the polymer? Is it the polymer of acrylonitrile with styrene or conjugated diene, which has not been modified by introducing the claimed ionic groups? Is it the polymer of acrylonitrile with styrene or conjugated diene, which has been modified by introducing the claimed ionic groups?

If "the polymer", which is a component of the cleansing processing agent, has been modified by introducing the claimed ionic groups and comprises the claimed ionic groups, then it is not clear how this polymer can be the resin or rubber recited by claim 50.

If "the polymer" is the polymer of acrylonitrile with styrene or conjugated diene, which has not been modified by introducing the claimed ionic groups and is the resin or rubber recited by claim 50, then it is not clear how can this polymer be obtained by processing with acid and/or alkali, as recited by claim 56.

### ***Response to Arguments***

11. Applicant's arguments filed 12/23/08 have been fully considered but they are not persuasive.

The applicants admitted that Horwitz et al teach " $-\text{PO}(\text{OH})_2$ " groups in the polymer.

The applicants then allege that the rejection over Horwitz et al is not proper because Horwitz et al do not teach the other claimed groups.

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The applicants further argue that “-PO(OH)<sub>2</sub>” groups are introduced by copolymerization, not as required by Claim 1.

The examiner disagrees:

First, the claims do not require all the ionic groups recited by claim 42, but at least one of the recited groups.

Second, there is no claim 1 pending in the application.

Third, the claims are not limited to any specific way of introduction of the referenced groups.

Fourth, in contrast to the applicant’s unsupported statement, Horwitz et al teach introduction of the other claimed groups by the claimed way. See at least column 3, lines 31-56 and Example 1 at column 8, lines 49-55.

The applicants further argue that the claimed ion exchange resin does not include cross-linking agent, while Horwitz et al teach polymerizing with a cross-linking agent.

The examiner would like to note that the claims are not limited to exclude a cross-linking agent. Thereby, whether or not the applicants correct in their statement, the argument is not persuasive.

The applicants amended the claims and argue that the rejection of claim 57 made in the previous Office action is not proper.

The amended claim is addressed in the rejection above.



***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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